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CHOOSING AN OCCUPATION WISELY--A PROPOSAL TO TAKE THE GUESSWORK OUT OF FUTURE VOCATIONAL GUIDANCE.

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ON ENTERING JUNIOR COLLEGE, THE STUDENT HAS MADE OR WILL SOON MAKE AN OCCUPATIONAL CHOICE. HE USUALLY MAKES IT WITHOUT ENOUGH UNDERSTANDING OF HIMSELF. THE COUNSELING OFFICE MAY BE UNDERSTAFFED OR PRIMARILY CONCERNED WITH PROGRAM ADVISEMENT RATHER THAN WITH THE PROPER DIRECTION OF THE PROGRAM. HIS CHOICE MAY THEREFORE BE MADE IN RESPONSE TO CURRENT INTERESTS (SUBJECT TO CHANGE) OR TO PARENTAL INFLUENCE, NEITHER OF WHICH MAY RECOGNIZE THE STUDENT'S ABILITY OR POTENTIAL. A SYSTEMS APPROACH IS PROPOSED TO ASSESS THE STUDENT'S ABILITIES AND INTERESTS BY A BATTERY OF TESTS. THE PROFILE OF HIS TEST SCORES IS COMPARED MATHEMATICALLY FOR BEST FIT WITH STATISTICAL RENDITIONS OF PROFILES OF JOB REQUIREMENTS AS DETERMINED BY THE TEST SCORES OF SUCCESSFUL PRACTITIONERS IN MANY JOBS. THE CAREERS FOR WHICH THE STUDENT IS BEST FITTED WILL BE SHOWN IN RANK ORDER. HE MAY THEN SEEK INFORMATION ABOUT THE ONES WITH WHICH HE IS UNFAMILIAR AND ABOUT THE OPPORTUNITIES IN THOSE AREAS THAT INTEREST HIM. THIS SYSTEM WOULD OBJECTIFY THE PRESENT RANDOM SELECTION PROCESS, MAKING MORE EFFICIENT USE OF THE STUDENT'S, TEACHER'S, AND COUNSELOR'S TIME, AND OF TAX DOLLARS, EDUCATIONAL FACILITIES, AND SOCIETY'S MANPOWER. (HH)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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UNIVERSITY OF CALIF.
LOS ANGELES

MAY 15 1968

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

JC 680221

by

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Los Angeles, California

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THE PROBLEM

The junior college student who encounters the unfilled space labeled "Major:" on the admissions application is, in effect, called upon to render an occupational choice. If he has already made a decision, either the major he writes down will direct his energies expeditiously and successfully toward his selected goal without waste of time, or he will pursue an unrealistic or inappropriate goal for his interests, attitudes, or capabilities, dissipating his time and energies in a vain trial. Many students are undecided and so state. All students, therefore, may be classified into one of three categories: undecided; declared, but poor choice; and declared and good choice. The undecided major is usually the largest single group represented in a portrayal of major fields at the junior college level.[1] Each member of this group is unquestionably in need of the capital resources of occupational guidance. The declared major who made a poor choice is also in need of the counselor's help. He needs special consideration since, if he is not strong-willed, he may relinquish his educational quest at the first sign of failure in his poorly chosen curriculum. Early identification and redirection is required in his case. The latter case of the "good choice" declared major presents little problem, provided an alternative <u>better</u> choice is not apparent. The "poor choice" student may be difficult to distinguish from the "good choice" student in the early stages of his post-secondary education. (This problem is accentuated by the counselor's

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[1]Undecided majors constitute 25% of the spring semester, 1968, student population at El Camino College. The second largest group (business administration majors) constitutes a mere 11%.

relative remoteness from the day-by-day grading process which in itself builds a good case for the instructor's involvement in the detection phase of the counseling process.) Unfortunately, many "poor choice" students are identified only by their subsequent absence from the junior college campus. The counselor may never have another chance to salvage this student's potentialities. (Staggered school terms have merit in that a student must not wait out the remainder of a long semester to make a second attempt.) Since initial identification yields only two categories, it is important that all students be exposed to an efficiently operating, well-conducted counseling process early after admission to the institution. The result can be a more complete realization of the students' potentialities with a greater societal benefit than is now realized.

Junior colleges all too frequently assume that the student's occupational choice or his parents' lofty ambition for him is a valid decision. The counseling and guidance department concerns itself primarily with program advisement rather than occupational choice, under the guise that the press of time and number of students prevent anything more. This is somewhat like beginning a journey at breakneck speed without considering the fuel and equipment available, the feasibility of the trip itself, or what to do if the way is suddenly blocked. This is hardly an efficient way to spend the time and energies of thousands of students and teachers, not to mention tax dollars.

Most junior college students will readily admit that they are enrolled for the purpose of preparing themselves for the world of work. To them, a job is a means of livelihood and of obtaining those objects and

and comforts they desire. Yet, many of these same students, even declared majors, do not know for what job they are preparing. The student who does not change his major at least once during college is the exception today. Three or more major changes in career direction after leaving school are now commonplace in a single individual's lifetime. It is acknowledged that interests change, but could not those changes directly attributable to misdirection be minimized by greater self-realization on the part of the students? Perhaps if a more satisfactory mating of individual traits and job characteristics were realized from the start, this high rate of job-changing would lessen, reducing the waste and inconvenience of geographical shifting and retraining and at the same time increasing job satisfacion and productivity.

The purpose of this paper is to propose and explore an objective route to identifying the student's strengths, weaknesses, and other characteristics, to assist him in making an appropriate occupational choice, and to direct his energies toward its expeditious attainment without wastefully consuming his time and resources in vain attempts toward unrealistic goals.

Part of the problem lies in the counseling office. It is reported that over half of the counseling offices lack sufficient personnel with adequate measurement training or experience.[2] Also, the time counselors can allot to individual counselees is limited by high student-counselor ratios and time-consuming chores such as program advisement, a large portion of which could be accomplished by a competent clerk or, better yet, by a computer. In

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[2]Seibel, Dean W. "Testing for Guidance and Counseling in Junior Colleges," Personnel and Guidance Journal, 45 (June, 1967), p. 979

addition a counselor, even one who is devoted to full-time occupational guidance, cannot instantly recall each of the multitude of jobs listed in the Dictionary of Occupational Titles, much less recall the specific job requirements of each, and then match the counselee's qualifications with minimum error to the jobs best suited to the counselee.

DELIMITATION OF THE PROBLEM

In this paper, attention will be directed toward those students who declare themselves as undecided in their majors and/or their occupational choice and those who have declared a goal but are unsure and have presented themselves at the counseling office for any of several reasons. Since specific courses taken toward an unrealistic or inappropriate goal are in vain if that goal is subsequently discarded, the counseling office which concerns itself with program advisement to the neglect of goal assessment commits a grave error. Thus the counseling office which directs all available resources at its command toward realistic goal-setting saves the time, energy, and money of the student and the taxpayer, and in turn performs its rightful role of preventing societal waste. Since relatively few of the many thousands of occupations are apparent to the typical student, the task of assisting in occupational selection logically falls to the counseling office. The so-called "hidden occupations" deserve especial emphasis.

DISCUSSION

The Student. Beginning junior college students are well aware of their interests, but only vaguely aware of their true capabilities. Often they

have practically no information on job requirements and thus are not only undecided, but also are unaware of how to meet job requirements once the decision has been made. Yet, very early in his junior college sojourn, the student is called upon to render an occupational choice in order to give direction to his educative efforts for the next two to four or more years. Such an important decision should not be left to whim or chance. The practice of following in the father's footsteps when choosing an occupation does not fit in the specialized American society of the late twentieth century where individual differences are recognized. Yet many parents do influence their child's choice quite strongly, if not limiting him to his father's occupation, then over-aspiring him to jobs requiring skills and knowledges beyond his capabilities. What becomes of this student who has not been adequately counseled for reasons mentioned previously? He launches himself on a rigorous program leading to his aspired goal, not knowing that he has a severely limited chance for success. The decision later triggered by a lack of success is a critical one. Shall he muster his courage and visit the counseling office for the help he severely needs, frankly admitting his poor choice? Comparison of spring versus fall semester enrollment figures at almost any junior college will show that this is not the case. The student decides college is not for him, so he adds himself to the throng looking for work, with only an unmarketable fraction of a degree pock-marked with failures.

The Counseling Office. Inasmuch as several thousands of students may descend upon a junior college counseling office during the short period of registration, the counseling office must be given a second chance to counsel

the students under its purview in a much more leisurely way. Those students who early experience discouragement through failure to achieve must be induced into returning to the counseling office for the reconsideration and redirection process to occur. A method might be that the student be required to present himself at the counseling office for a counseling interview as a part of the withdrawal process (presuming he is seeking honorable withdrawal by complying with procedures so as to prevent F's on his record for failure to attend later classes). In this manner, many salvageable students may be retrieved and redirected toward more appropriate occupational goals.

The usual procedure rendered to an undecided student by an overloaded or unconcerned counseling office is to fill the student's program with general education courses so that he may have an opportunity to "shop around." Once decided, the best that such a student can wish for is that he is able to catch up to the initially decided student by doubling up in his specialty courses later. Usually, his educational objective is made a semester or more distant by the inapplicability or non-transferability of one or more such courses taken during his "shopping" period. This is not to imply that a great deal of good cannot be derived from those general education courses later proved extraneous. Rather, does that benefit justify the sacrifice of one or two semesters of an individual's productivity, merely because the counselor could spare no more than fifteen or twenty minutes of time, consuming even those precious moments in <u>program advisement</u>?

This leads one to ask if the counseling and guidance movement is indeed performing its intended role. Dr. Nicholas Hobbs of George Peabody College for Teachers has expressed his impressions as follows:

> [The guidance movement, which] ... started in the interest of the fullest human development, [seems] to have become a vast technology, almost completely absorbed in its own operations, rather vaguely concerned about the nature of the individual it proposes to serve, and seemingly oblivious to the demands of the society in which the individual must work out his destiny. I came away from this experience feeling that we in guidance have been captured by our methodologies and that we have lost sight of the meaning of what we are doing. In our preoccupation with how to do things, we seem to have lost interest in why we do them.[3]

What are those things the counseling and guidance movement is trying to do? The American Personnel and Guidance Association has formulated a statement of the role of the counselor which perhaps embodies the aims of the movement as a whole:

> The major responsibility of the counselor is to assist an individual through the counseling relationship to utilize his own resources and his environmental opportunities in the process of self-understanding, planning, decision-making, and coping with problems related to his developmental needs and to his vocational and educational activities.[4]

The 1954 statement of the National Manpower Council is appropriate at this point:

> Yet, except for a small number of communities, these functions [vocational guidance and counseling] are not being satisfactorily performed. Most students do not receive the assistance they require to make the best educational and occupational decisions. Some counselors base their advice solely on the

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[3]National Manpower Council, A Policy for Skilled Manpower (New York: Columbia University Press, 1954), p. 276, citing Nicholas Hobbs.

[4]American Personnel and Guidance Association. "The Counselor: Professional Preparation and Role," Personnel and Guidance Journal 42, January, 1964, p. 537.

> results of intelligence or aptitude tests. In some schools counselors seek to persuade their students to reach a particular decision rather than to help them to make their own. The occupational information essential for sound vocational guidance is limited, and, moreover, it is frequently in a form that makes it difficult for the counselor as well as the student to use.[5]

Meanwhile, the wisdom of Parsons has remained for over one-half century, oft-quoted by scholars, but seldom used by practitioners. It is as appropriate today as when it was first written.

> In the wise choice of a vocation, there are three broad factors: (1) A clear understanding of yourself, your aptitudes, abilities, interests, ambitions, resources, limitations, and their causes; (2) A knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects of different lines of work; (3) True reasoning on the relationship of these two groups of facts.[6]

The three tenets of Parsons' philosophy constitute the theme of this paper, with a decided emphasis on the third.

The Stability of Student Interests. Student capabilities must be assessed as early as possible and the student made aware of the occupations for which he is best suited, so that he may make his selection from those occupations where he is most likely to experience success. General preparation is appropriate at the lower educational levels with limited channeling into broad areas occurring at the secondary level. The student "must...also maintain sufficient flexibility to shift his plans as he matures, his interests stabilize, and his knowledge expands. This required that he does not

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[5]National Manpower Council, op. cit., p. 25.

[6]Frank Parsons, Choosing a Vocation (New York: Houghton-Mifflin, 1909), p. 5.

make the type of premature choice of courses or schooling that can prevent him from later changing his plans"[7] or realizing his full potentialities.

Ginzberg has defined three periods of occupational choice determination. These are (1) the fantasy choice period, also called the "latent period," and found in children ages six through eleven; (2) the tentative choice period found in early and late adolescence; (3) the realistic choice period of early adulthood.[8] By the time the typical student presents himself at the junior college, he is reasonably close to the transition between the tentative choice period and the realistic choice period, although he may be on either side, depending upon his stage of development. Although his interests likely have changed many times in the past, they will continue to change less frequently in the future.[9] It is plausible to assume that the interests of most junior college students have gelled sufficiently so that a reasonably narrow range of occupations may be identified as appropriate by means yet to be described. Hopefully, prior educational channelling has not irrevocably removed these occupations from the possibility of the student's serious consideration.

The Case for Testing. How can the irrevocable mistakes possible in early channelling be minimized? Tests have been under virtually continuous attack for their lack of validity. Yet, tests offer a more objective mode

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[7]National Manpower Council, op. cit., p. 279-80.

[8]Eli Ginzberg, Occupational Choice (New York: Columbia University Press, 1951) p. 60ff.

[9]Donald E. Super and Phoebe L. Overstreet, The Vocational Maturity of Ninth Grade Boys (New York: Bureau of Publications, Teachers' College, Columbia University, 1960); Edward K. Strong, Change of Interest with Age (Stanford University: Stanford University Press, 1921).

of measurement than the subjective decisions of ambitious parents or students who select the path of least resistance, sometimes making a decision with lifelong consequences merely to avoid separating himself even briefly from his group of high school friends. Valid or not, if test scores of successful workers in specific jobs tend to cluster within reasonably narrow ranges, patterns may be established which may be used to identify the suitability of students for endeavoring to prepare themselves for that job.

If sufficient occupational guidance has not been received at the secondary level, or if adequate testing has not been conducted previously, the task falls to the junior college counselor. He must start at the very beginning, hoping that the student's high school course of study has not channeled him irrevocably into an area of little promise.

It is difficult for a counselee, even one with his high school transcripts in hand, to transmit enough information to the counselor within the short half-hour or less counseling period, so that the counselor can take an informed approach to helping the counselee. The various factors that constitute individual differences are too multifarious. In order to describe the individual without resorting to lengthy, subjective-type interviews, an instrument is needed that can be applied to each of many individuals and gives a basis of comparison from which individual differences can be discerned. Psychological testing performs this task in an extremely rudimentary way. The usual psychological tests can be incorporated into a battery of objective tests which include many merely descriptive items ultimately leading to a profile of test scores that characterizes most of the job-related attributes the individual possesses or lacks. The reader is undoubtedly well aware of those different superficial attributes which enable

successful practitioners to drive bulldozers, pilot airplanes, sell insurance, or manage a business. How often is the presence of these attributes, plus more subtle ones, ascertained in aspirants to these endeavors before they have spent a semester or two of their life in an ill-fated effort? "When a person makes an educational or occupational decision without due consideration of his strengths and his opportunities, he wastes his potential abilities, and the community's manpower resources are correspondingly weakened."[10]

The importance of the complete testing cannot be over-emphasized.

> The problem here is not merely that of discovering one or more unusually strong aptitudes but of trying to see the whole pattern of your [the counselee's] developing personality. This pattern will include physique, health, aptitudes, interests, life values and purposes, skills and other achievements, economic status, and all the personal qualities that effect human relationships and life adjustments.... The attempt should be made to evaluate the relative strength of all significant characteristics and to discover for what types of work the particular pattern seems best suited.[11]

The Minnesota Occupational Rating Scales, consisting of the five categories: abstract intelligence, mechanical ability, social intelligence, artistic ability, and musical ability, makes a rudimentary approach to the type of testing and job requirement matching to be proposed in this paper.

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[10]National Manpower Council, op. cit., p. 25.-

[11]M. E. Bennett, College and Life (New York: McGraw-Hill, 1952), pp. 349-350.

A more complete listing of characteristics to be measured is included in the discussion of the occupational choice process of the future, found later in this paper. These tests will not only lead toward the counselee's self-understanding, but will also furnish the raw material required for objective matching of characteristics with job requirements for vocational guidance.

It is not within the intended scope of this paper to determine whether the tests presently available are valid or not. The author requests the reader's indulgence in assuming the existence of a battery of valid, non-correlated tests for the purposes of further discussion.

Interest and aptitude tests lead only to broad occupational areas. The greatest expertise is required in using grade point average, personality profiles, and other data to assist the student in selecting a specific occupation from the more than twenty thousand different occupations presently identified in our specialized society. Undoubtedly, this is beyond the capabilities of all but the most extraordinary counselor. To do a satisfactory job of objectively matching the student's particular combination of test scores, interests, personality, etc. to those characteristics best suited for the few particular jobs to be suggested to the student from such an impressive list is a virtually insolvable task for a mere human counselor--but not for a computer!

A PROPOSAL

Cooley has acknowledged the inability of counselors, as human beings, to assimilate, much less handle, the large number of interrelating variables

of a number of counselees. He therefore proposed the use of a computer to analyze student data (test scores, etc.) and to signal, somewhat like the red light on an automobile's dashboard, to the counselor those students in trouble gradewise, or with unrealistic goals, etc.[12]

The following suggested procedure for occupational selection of the future proposes to use the computer so as to prevent the malady which would only be detected by Cooley's method. The occupational choice process of the future might proceed as follows:

(1) The student takes a battery of objective tests which includes not only the usual verbal and quantitative aptitude tests, but also interests, personality, and manipulative ability assessments. A measurement of visual acuity, hearing, strength, and stamina would assist in determining the appropriateness of some jobs. N. C. Meier of the University of Iowa lists six factors as contributing to artistic ability.[13] Could we not also list measurable factors that contribute to success in a particular job? For example, temperament, maturity, ability to initiate independent action, and persuasiveness are all factors of personality. Concentration span, creativity, memory, and ability to assimilate facts and synthesize new knowledge therefrom are other measurable attributes.

(2) The student's test results are matched by computer against data already in the computer for each of many job descriptions. A mean and standard deviation for each test is determined for each job description, based on the test scores of employees already in that job and considered successful by their employers. The computer then might compare the student's test score profile for best mathematical fit within the limiting parameters for each of many jobs. (At the junior college level, perhaps comparison would be made with only those jobs requiring post high school training, but by no means limited to those occupations served only by locally offered programs.) If too many jobs

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[12]William W. Cooley, "A Computer Measurement System for Guidance," Harvard Educational Review, 34 (Fall, 1964), pp. 561-2.

[13]Donald E. Super, Appraising Vocational Fitness by Means of Psychological Tests (New York: Harper & Bros., 1949), p. 308, citing N. C. Meier.

would be suggested for a particular student, the computer could be preprogrammed to narrow the "z-scores" being tested; too few suggested job possibilities could trigger a "z-score" enlargement. The use of "z-scores" gives cognizance to the latitude inherent within both individuals and jobs as mentioned by Super,[14] but still allows best mathematical fit to be performed by the computer. The jobs would be ranked when printed out. A confidence factor or other index might give a quantitative aspect to each job suggestion.

(3) The counselor faces the student for the first time. The computer readout is at hand; the student may already have his copy. The pros and cons of the computer suggestions are discussed. The student may not be aware of what constitutes some of the suggested jobs. The counselor may supplement the conversation with such aids as the Occupational Outlook Handbook, Dictionary of Occupational Titles, career films (if available), film loops portraying the on-the-job activities of employees of these "hidden occupations." Up-to-the minute job opportunity information with projections to the student's graduation date (based on current nationwide enrollments in programs leading to that occupation) is hopefully available on call from a national data bank. San Diego County Department of Education has developed an extensive employment information data retrieval system known as VIEWScripts.[15] Visits to job

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[14]Three of Super's ten propositions are applicable:

(1) People differ in their abilities, interests, and personalities.
(2) They are qualified, by virtue of these characteristics, each for a number of occupations.
(3) Each occupation requires a characteristic pattern of abilities, interests, and personality traits, with tolerances wide enough, however, to allow both some variety of occupations for each individual and some variety for each occupation.

Donald E. Super "A Theory of Vocation Development," American Psychologist, Vol. 8, (May, 1953), p. 189.

Dr. Super does not mention in this article how the identity of the "number of occupations" is identified or how those for which the counselee is best equipped are singled out. He does say that some traits (such as punctuality, honesty, etc.) apply equally well to all jobs.

[15]VIEWScripts consist of information relating to approximately 200 occupations for which job opportunities exist only in the local area. All of the 200 occupations require less than a baccalaureate degree. A VIEWScript is an eight-page document listing the personality traits, aptitudes, physical traits, abilities, and knowledge required for a particular occupation. Comments on prospects and opportunities are also included.

sites may be arranged, if feasible. Perhaps the student may choose to reject all computer-suggested job possibilities, even after the computer has been asked to add additional jobs to the ranked list. The student should not be denied the opportunity of pursuing exploratory courses leading to an occupation of his choice which may not appear on his computer readout. However, some method must be devised so that any lack of success experienced in challenging any program will not indicate failure in education to the student. He must be coerced in some manner to return to the counselor's office for redirection into a program which will give him satisfaction and successful learning experiences.

(4) Hopefully, the program advisement task will have already been assumed by the computer. The occupational choice printout will have included the educational major that should be pursued. Once the student indicates his major, the number of credits he wishes to take per school term, and his working hours if he has a job while in school, a computer should be able to prepare the school's master schedule in response to student demand and issue schedules to both students and teachers alike, forever eliminating the procedure we now call registration.

Critics of computer-counseling have said that use of the computer will remove the human element from the counseling process. This is an exaggeration of the truth. The routine duties now performed by a counselor would be removed, giving him time to counsel. To give a counselor the time and opportunity to develop a more personable relationship with his counselee is hardly removing the human element. Only if the school district uses the computer as an excuse to increase the student-counselor ratio would this be so. Removal of the human element is not altogether bad, since, being human, counselors are prone to lead students into those endeavors which have proved to be enjoyable to themselves, regardless of the student's attributes or propensities.

Ramifications. Implementation of such a system would require constant updating. In addition to the possible student changes already discussed, the job market may change; the job itself may change. The system must have some means of detecting new jobs, hopefully well in advance, and even predict job requirements for jobs which may not yet even exist. The changes wrought by an evolving technology must be incorporated, such as the plumber relinquishing his wrench to pick up the soldering torch of the copper plumbing era, or setting aside his lead pot to pick up the screwdriver to join some plastic sewer pipe. The need for current occupational information is apparent when consideration is given to the vocational educational problems today amidst a rapidly changing world. The student must retain some degree of flexibility, for putting too much emphasis in preparation for a particular job is dangerous inasmuch as by the time the student finishes his training, he may find that occupation obsolete.[16]

Such a system would ease the shortage of personnel trained in test interpretation. Interpretation of tests may no longer even be required. The undesirable or abnormal traits (measured by societal norms) which may have led the counselor to the conclusion that the counselee was ill-equipped for any job, may be the very traits considered as important contributors to success in a little-publicized job unknown to the counselor. For example, asociality may even be desirable on a certain assembly line where friendly conversation may lower productivity by interrupting the concentration required. The computer method herein proposed need never even inform the counselee of his frailty (again measured by societal norms), merely directing him to the job for which he is or will be, by graduation, best suited.

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[16] Automated Education Letter, September, 1966, p. 8.

The information available from such a system will bring a realistic course to occupational planning. The problems formerly encountered and reported are still with us today.

> Surveys have indicated that there is a serious lack of realism among high-school and college students in planning their contributions to the world's work. Sparling reported that of 888 university students whom he studied, 70 per cent were endeavoring to gain entrance to three of the most overcrowded vocations in the United States and 95 per cent to the four most over-crowded vocations in metropolitan areas. These students believed that they would earn four times as much as the average worker in the expected occupation actually earns, and they revealed little insight into the social, economic, and cultural handicaps that they might expect to encounter.[17]

> Other studies confirm this conclusion that students tend to place an undue amount of emphasis on a few professions as the only desirable vocational choices and that they are likely to make their selection without sound evaluation of either themselves or the work they will be called upon to do.[18]

Also it will broaden the horizons of unsophisticated youth. The restricted employment opportunities of the local area...

> ...may give young people [and the local school board] a very limited picture of the world of work. They fail to consider that they are likely to migrate to other parts of the country. Such ignorance of possible future opportunities is undoubtedly an important reason why approximately 40 per cent of young Americans terminate their education before they graduate from high school.[19]

> They are not made aware of the enlarged opportunity for training or employment that may be open to them in communities in other parts of the country or in the armed services.[20]

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[17] Bennett, op. cit., p. 346, citing E. J. Sparling.

[18] Ibid., pp. 346-347, citing E. D. Sisson, E. G. Williamson, and J. G. Darley.

[19] National Manpower Council, op. cit., p. 279.

[20] Ibid.

A problem which the local junior college board must face if it implements such a system is as follows: Suppose the computer has suggested and the student has selected an occupation for which neither training nor job opportunities are locally available, or even within commuting distance. The junior college district may be dedicated to offering a free education to all of its citizens, and extends its offerings through interdistrict transfer permits. Perhaps the student can ill afford the extraordinary expenses of travel and/or living away from home, and perhaps even tuition (if out of state, or no interdistrict agreement exists). Shall the student be denied a free education which develops him to his highest potentialities merely because he <u>has</u> a unique set of capabilities and interests? Do we deliberately coerce him into a locally-offered program, cognizant that we are not allowing him to develop his potentialities to the fullest? That this is a problem is an indictment of the shortsightedness of today's antiquated educational system. The mobility of today's society is unexcelled in history, and is increasing. The junior college district must be responsive to job opportunities not only beyond its own boundaries to state boundaries, but even to regional and national manpower requirements. The junior college district that is reluctant to train its youth for jobs elsewhere for fear they will leave must recognize that the modern jet age will ultimately place a sizable number of its graduates elsewhere anyway. Shall these people arrive at their new location with only that training which applies specifically to those jobs indigenous to home, which is now remote? The junior college must recognize that it exists in a jet-age national community, and consequently offer some programs to fill national manpower

needs. The economics of the problem will demand that such programs be established only in response to sufficient student demand. However fairness dictates that some method should exist to offer free education likewise to the student of unique capabilities and interests via an expanded transfer agreement. Programs offered to fill remote needs must necessarily suffer some generalization since the specific requirements of a job may vary according to its location. Logically some curricular clearinghouse should be established to coordinate such program offerings so as to avoid later overstaffing jobs of present real, but limited need.

On the other hand, it is quite possible that such program offerings will eventually attract employers into the community seeking plant sites with a ready and perpetuating source of trained personnel. It is impossible to measure the full extent of the far-reaching benefits to the local community resulting from such a windfall.

Implications for the Future. The National Manpower Council in 1954 gave emphasis to the importance of vocational guidance in its recommendation that:

> School officials use their guidance and counseling staff primarily for vocational guidance purposes and, when expanded resources of staff and funds permit, also for counseling students with personal adjustment problems.[21]

The "expanded resources of staff and funds" could be supplanted by the system herein proposed, which indeed may require the mentioned funds.

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[21] Ibid., p. 27.

The Objectives of Improved Vocational Guidance which the National Manpower Council also set forth need no amending: (The author has taken the liberty of numbering them and subsequently adding the bracketed information to Objective 2.)

1. To make young people aware of the need to give more deliberate thought to the problem of their occupational choice.
2. To help young people avoid early acceptance of overly modest occupational goals. [or the converse, overaspiration]
3. Keeping young people from committing themselves to curricula or courses that will prevent them from changing or raising their occupational sights later in their educational careers.
4. Inducing awareness of the problem of occupational choice.
5. Providing information about jobs and educational and training opportunities.
6. Emphasizing the value of...education.[22]

The introduction of a systems approach toward fulfillment of these objectives should not deter the efforts of our present level of counseling manpower. Great detriment would result if computers were thought of as replacements for counselors and student-counselor ratios were consequently increased. The use of this tool to give counselors the opportunity to counsel is worth repeating here. The proposed "ideal" student-counselor ratio of 450:1 will still be on the high side.

The plan herein proposed is no pipe dream. Rather it is a synthesis of the ideas of several men, each of whom is considered an authority in his field. John C. Flanagan's "Project Talent" began in 1960 as a twenty-year study in which he extensively tested five per cent (5%) of those students

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[22] Ibid., pp. 280-1.

nationwide then enrolled in grades 9-12. His progressive follow-up of these students will give insight to the relationship between students' test scores and their ultimate achievement in their chosen occupation.[23] Frederic Kuder suggested looking at the test scores of successful practitioners in each of many occupations.[24] As early as 1928, Clark Hull looked forward to machine matching of individual aptitudes and job requirements.[25]

> We may look forward with confidence to a day not far distant when some such system will be operating in every large school system. Then, and not until then, will there be possible a genuine vocational guidance for all the masses of the people.[26]

As late as 1949, after the birth of the computer, Donald E. Super pondered the feasibility of such a plan, but dismissed it on the basis that people and occupations are both too complex for such an objective, non-judgmental machine-matching to take place. He does affirm his faith in psychological testing, the test results to be used by counselors.[27] Presumably, the counselor is free of all biases and has immediate recall of the job requirements of the tens of thousands of existing jobs. Presumably also, the

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[23]John C. Flanagan, "The Effective Use of Manpower Resources," Personnel and Guidance Journal, 42 (October, 1963), pp. 114-118.

[24]G. Frederic Kuder, "The Occupational Interest Survey," Personnel and Guidance Journal, 45 (September, 1966), p. 72.

[25]C. L. Hull, "An Automatic Machine for Making Multiple Aptitude Forecasts," Journal of Educational Psychology, 16 (December, 1925), pp. 593-598.

[26]Clark L. Hull, Aptitude Testing. (Yonkers, New York: World Book Co., 1928), Chapter 14.

[27]Donald E. Super, Appraising Vocational Fitness by Means of Psychological Tests. (New York: Harper & Bros., 1949), p. 15.

training of the counselor gives him the judgmental competence to interpret the test scores measuring the various factors that comprise the individual and to suggest to the counselee with minimum error the job for which he is best fitted. Indeed, present day computers are truly free of bias and can be given the multitude of job requirements which they can later perfectly recall almost instantly. They can be programmed to match test scores with job requirements with absolute minimum error. Dr. Super was obviously unaware in 1949 of the degree of future development of computer capability.

A cooperative project of the Harvard Graduate School of Education, the Newton [Massachusetts] Public School System, and the New England Education Data System (NEEDS) has obtained a $1.8 million U. S. Office of Education grant for developing a computerized means of presenting occupational information with an emphasis on job requirements. It will be supplemented by media such as printed materials, films, tapes, cartoons, and television.[28] A similar endeavor is Project VIEW sponsored by San Diego County [California] Department of Education which uses punched cards for data retrieval of information on approximately 200 occupations requiring less than a baccalaureate degree. Each card has a microfilm attached which contains information on job requirements and opportunities (local and nationwide).[29] Neither of these projects aspires to link job requirements with student capabilities in an objective, systematic way. Each tries to serve the student who is "shopping" somewhat at random for an occupation, aware of his own interests but still only vaguely aware of his capabilities.

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[28]Automated Education Letter. op. cit.

[29]Project View. (San Diego: Department of Education, San Diego County), n.d.

SUMMARY

Upon entering the junior college, the student has made or shortly will be called upon to make an occupational choice. His decision is usually made with inadequate information and understanding of himself. He is served by a counseling office which may be understaffed or primarily concerned with program advisement rather than in assisting him with the decision which would give proper direction to the program advisement. His occupational decision is, therefore, usually made in response to current interests (which may later change) or parental influence, both of which may be subject to whim and chance, while neither may give recognition to the student's capabilities or potentialities.

A systems approach is proposed whereby a student's interests and capabilities are assessed via a battery of tests. The student's profile of test scores is compared mathematically for best fit with statistical renditions of the profiles of job requirements as determined by test scores of successful practitioners in each of many jobs. The jobs for which the student is best fitted are suggested in rank order. The student may then seek occupational information about those jobs with which he is unfamiliar and opportunity information about those in which he is still interested.

Such a system would tend to objectify the somewhat random selection process that now occurs and make more efficient use of students' and teachers' time, educational facilities, and the taxpayers' dollars.

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